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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/898,439	07/05/2001	Tue Nguyen	SIM077	1885

7590 04/24/2003
Tue Nguyen
496 Olive Ave.
Fremont, CA 94539

EXAMINER

HOANG, QUOC DINH

ART UNIT PAPER NUMBER

2818

DATE MAILED: 04/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/898,439

Applicant(s)

NGUYEN ET AL.

Examiner

Quoc D Hoang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 February 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-16 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 03 February 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Notice to Applicants

1. Applicants' papers filed on 2/03/2003 has been entered and made of record as Paper No. 6. New drawing of Fig. 1A is included. Claims 1-16 and 20 are pending in this application.

Applicants' remarks have been considered.

Information Disclosure Statement

2. Information Disclosure Statement (IDS) filed on 2/11/2003 and made of record as Paper No. 7. The references cited on the PTOL 1449 form have been considered.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4, 9-11 and 14 are rejected under 35 U.S.C 102(b) as being anticipated by Ishizuka et al., (US Patent 5,531,834).

Regarding claim 1, Ishizuka et al., Figs. 1-44, and related text on col. 1-22 which discloses an apparatus to perform semiconductor processing, comprising: a process chamber 1 (col. 6, lines 25-67 and Fig. 1); a plasma generator 15 for generating a plasma in the process chamber 1 (col. 6, lines 25-67 and Fig. 1); and a helical ribbon electrode 13 coupled to the output of the plasma generator 15 (col. 6, lines 25-67 and Fig. 1).

Regarding claim 2, Ishizuka et al., discloses the helical ribbon electrode 13 is external to the process chamber (col. 6, lines 25-67 and Fig. 1).

Regarding claim 3, Ishizuka et al., discloses a dielectric wall 12 position between the chamber 1 and the helical ribbon electrode 13 (col. 6, lines 25-67 and Fig. 1).

Regarding claim 4, Ishizuka et al., discloses the dielectric wall 12 is a flat plate (col. 6, lines 25-67 and Fig. 1).

Regarding claim 9, Ishizuka et al., discloses the helical ribbon electrode 13 is internal to the process chamber 1 (col. 14, lines 35-40 and Fig. 31).

Regarding claims 10 and 11, Ishizuka et al., discloses the apparatus is adapted to receive a workpiece W in the chamber 1 and wherein the distance between the helical ribbon electrode 13 and the workpiece W is less than five inches (col. 12, lines 34-43 and Fig. 1).

Regarding claims 14, Ishizuka et al., discloses the plasma generator 15 is a radio frequency (RF) plasma generator (col. 6, lines 65-67 and Fig. 1).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 5-8, 12, 13, 15, 16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishizuka et al., (US Patent 5,531,834) as applied to claims 1-4, 9-11 and 14 above, and further in view of Qian et al., (US Pat 6,447,636).

Regarding claims 12, 13, 15, 16 and 20, Ishizuka et al., does not disclose a controller coupled to the solid state RF plasma source to pulse the solid state RF plasma source for each deposited layer. Regarding claims 12, 13, 15, 16 and 20, Qian et al., discloses in figure 1 and on page 10, lines 1-67 a system controller 140 coupled to the solid state RF plasma source 105 to pulse the solid state RF plasma source 105 for each deposited layer (col. 10, lines 1-10 and Fig. 1). Ishizuka et al., and Qian et al., are combinable because they are from the same field of endeavor. At the time of the invention it would have been obvious to a person of ordinary skill in the art to have a controller coupled to the solid state RF plasma source. The motivation for doing so is to generating a pulsed plasma, therefore improving the characteristic of the deposited layer. Therefore, it would have been obvious to combine Ishizuka et al., with Qian et al., to obtain the invention of claims 12, 13, 15, 16 and. 20.

Regarding claims 5-7, Qian et al., discloses the dielectric wall 130A is concave (col. 7, lines 20-40 and Fig. 4A).

Regarding claim 8, Qian et al., discloses the dielectric wall 130A projects through the center of the helical ribbon electrode 102A (col. 7, lines 20-40 and Fig. 4A).

Response to Arguments

7. Applicants' arguments filed on 2/03/2003 have been fully considered but they are not persuasive for at least the following reasons.

Applicant's argument concerns that cited reference Ishizuka does not teach a 3-dimensional helical ribbon electrode. However, the limitation "3-dimensional helical ribbon electrode" does not disclose in Applicants' independence claim 1.

Applicant's argument concerns that cited reference Qian does not teach the helical ribbon electrode has a elongated cross section. Again, the limitation "helical ribbon electrode has a elongated cross section" does not disclose in Applicants' independence claim 20.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quoc Hoang whose telephone number is (703) 306-5795. The examiner can normally be reached on Monday-Friday from 8.00 AM to 5.00 PM.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (703) 308-4910. The fax phone numbers of

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the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


Quoc Hoang
Patent examiner/AU 2818.


HOAI HO
PRIMARY EXAMINER